FIG.1
PRIOR ART

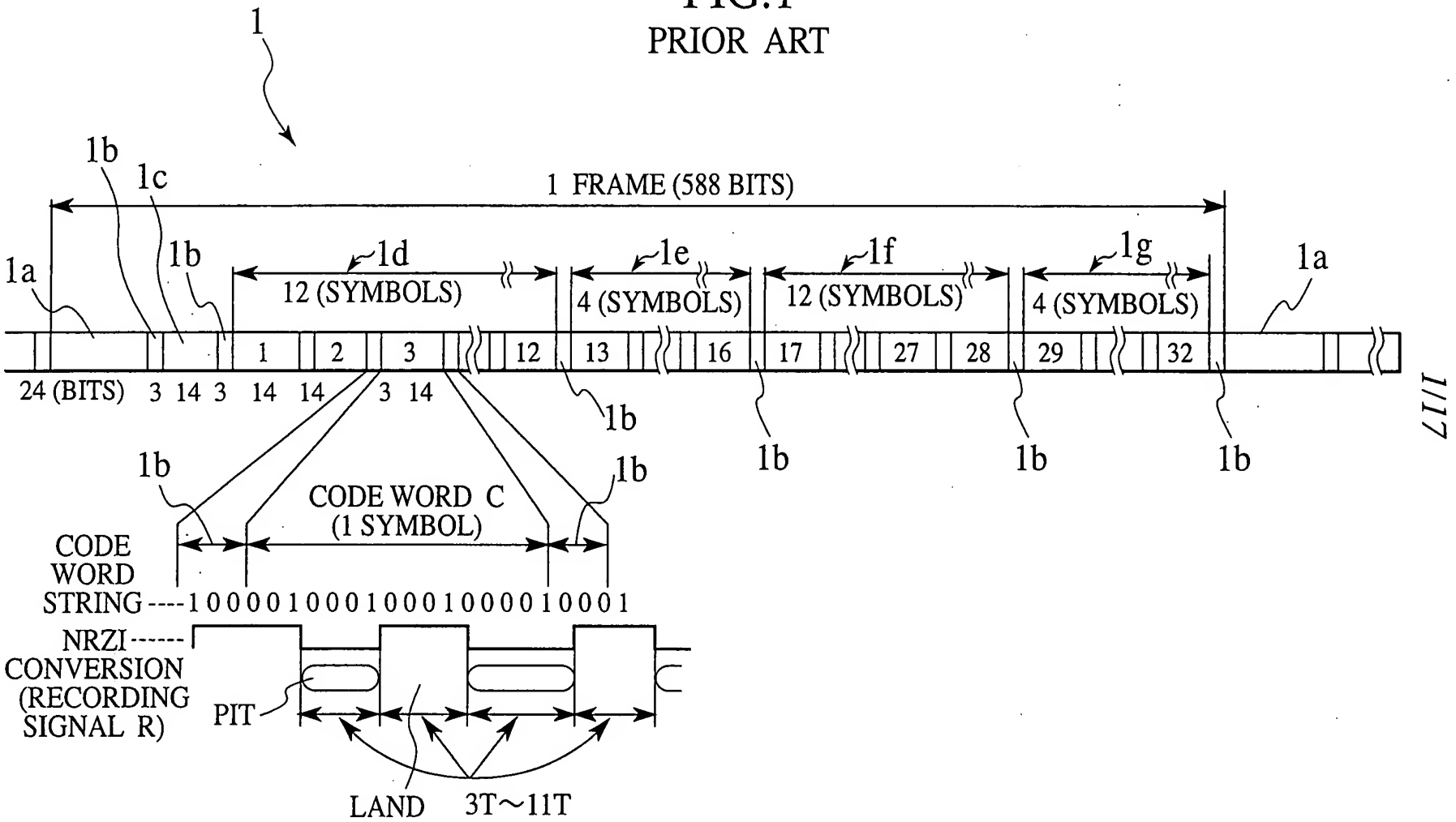

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FIG.2
PRIOR ART

CODING TABLE

INPUT DATA WORD D	CODE WORD C
000	01001000100000
001	10000100000000
002	10010000100000
003	10001000100000
⋮	⋮
253	00001000010010
254	00010000010010
255	00100000010010

FIG.3A
PRIOR ART

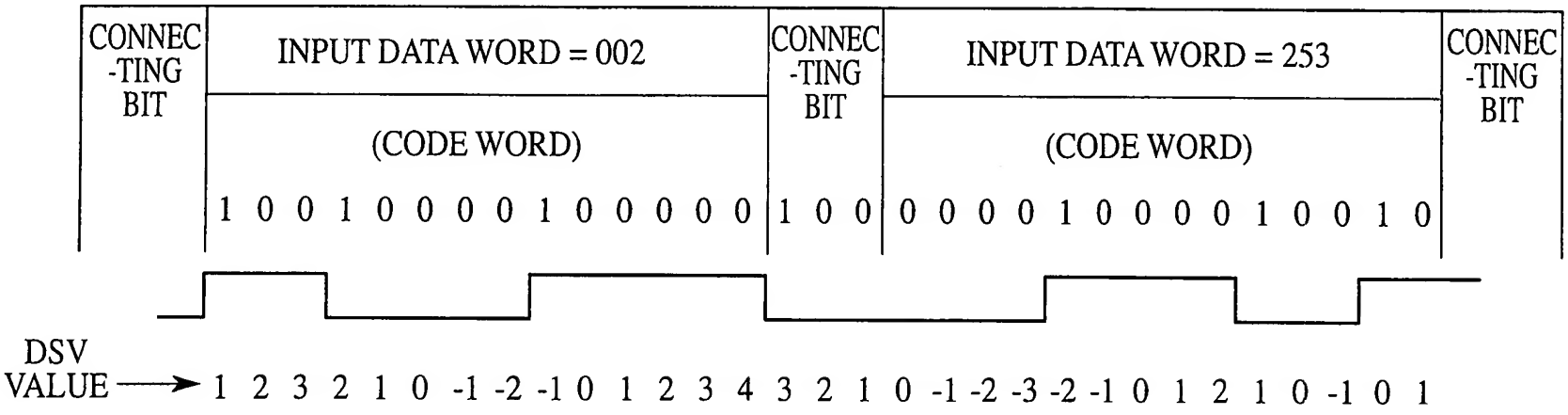
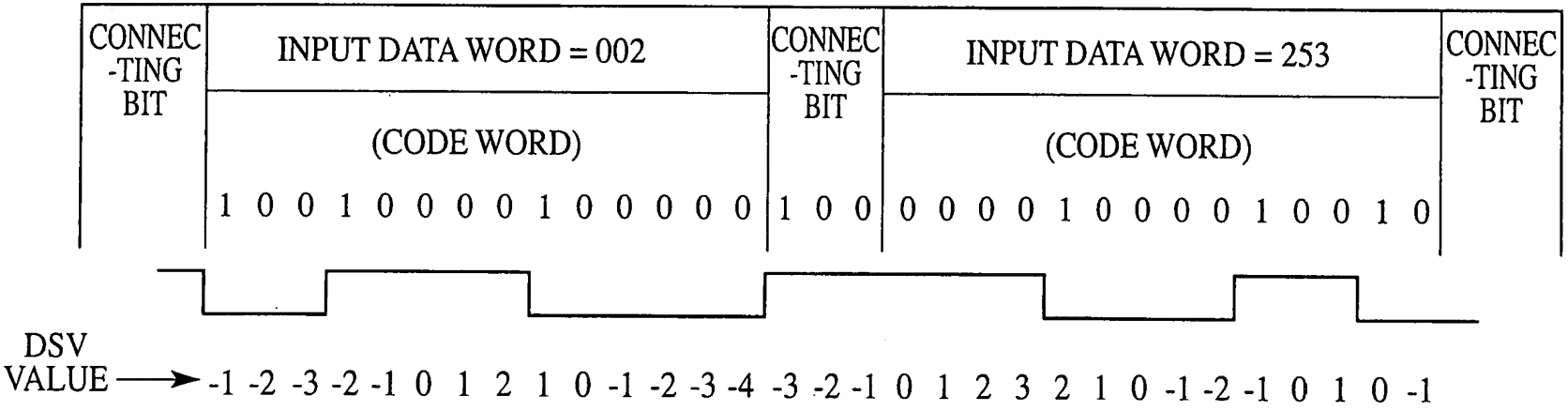


FIG.3B
PRIOR ART



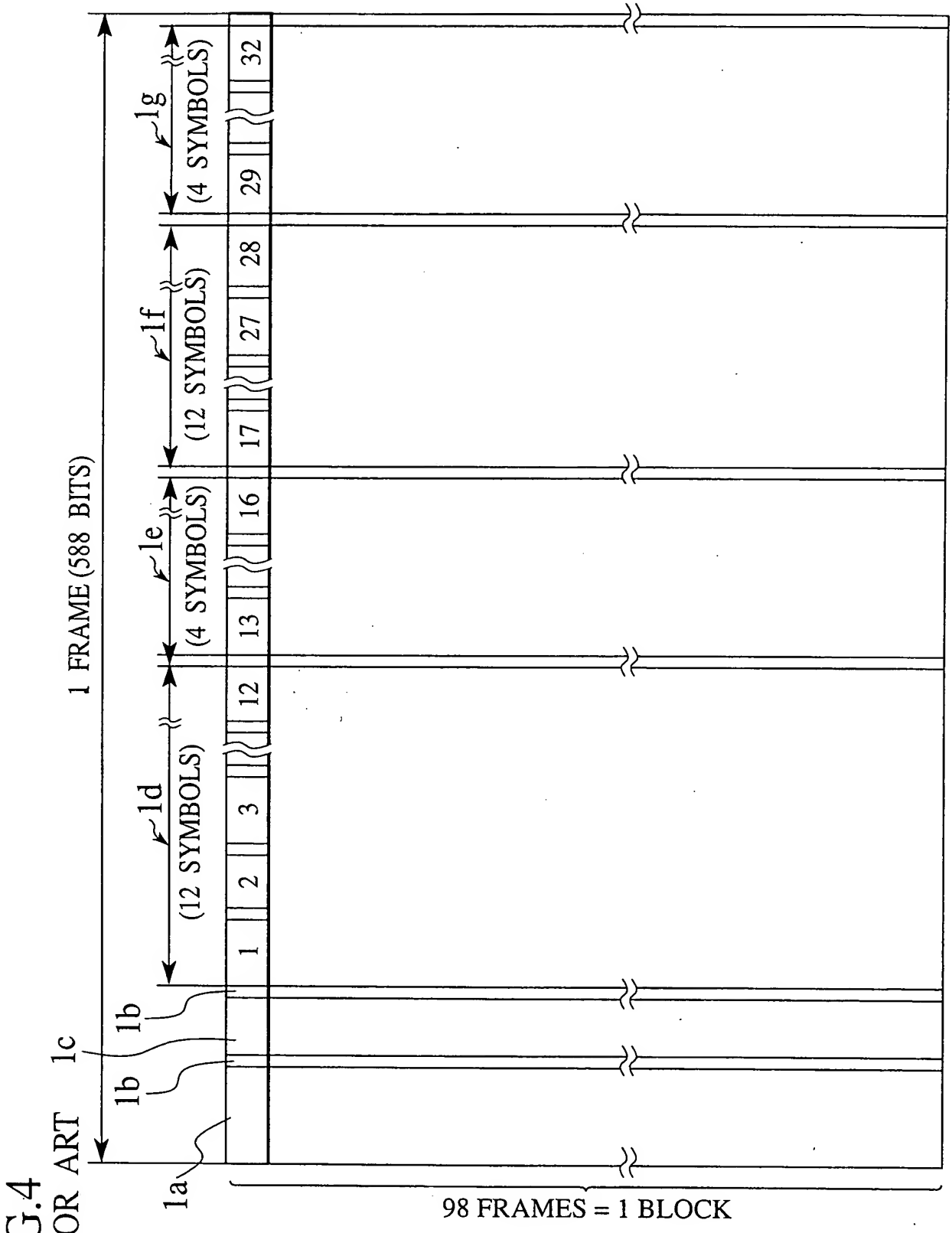


FIG.4
PRIOR ART

FIG.5
PRIOR ART

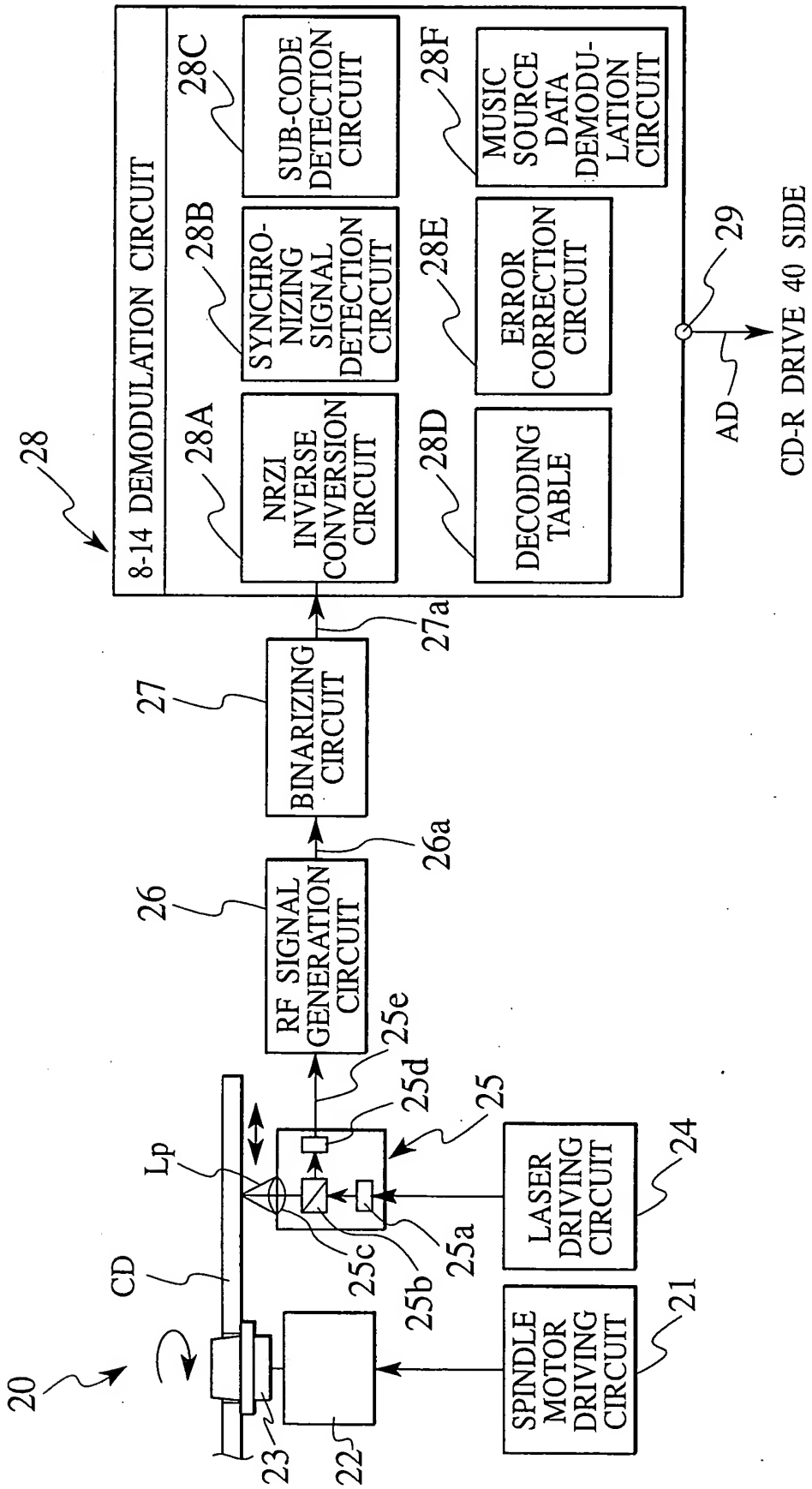


FIG.6
PRIOR ART

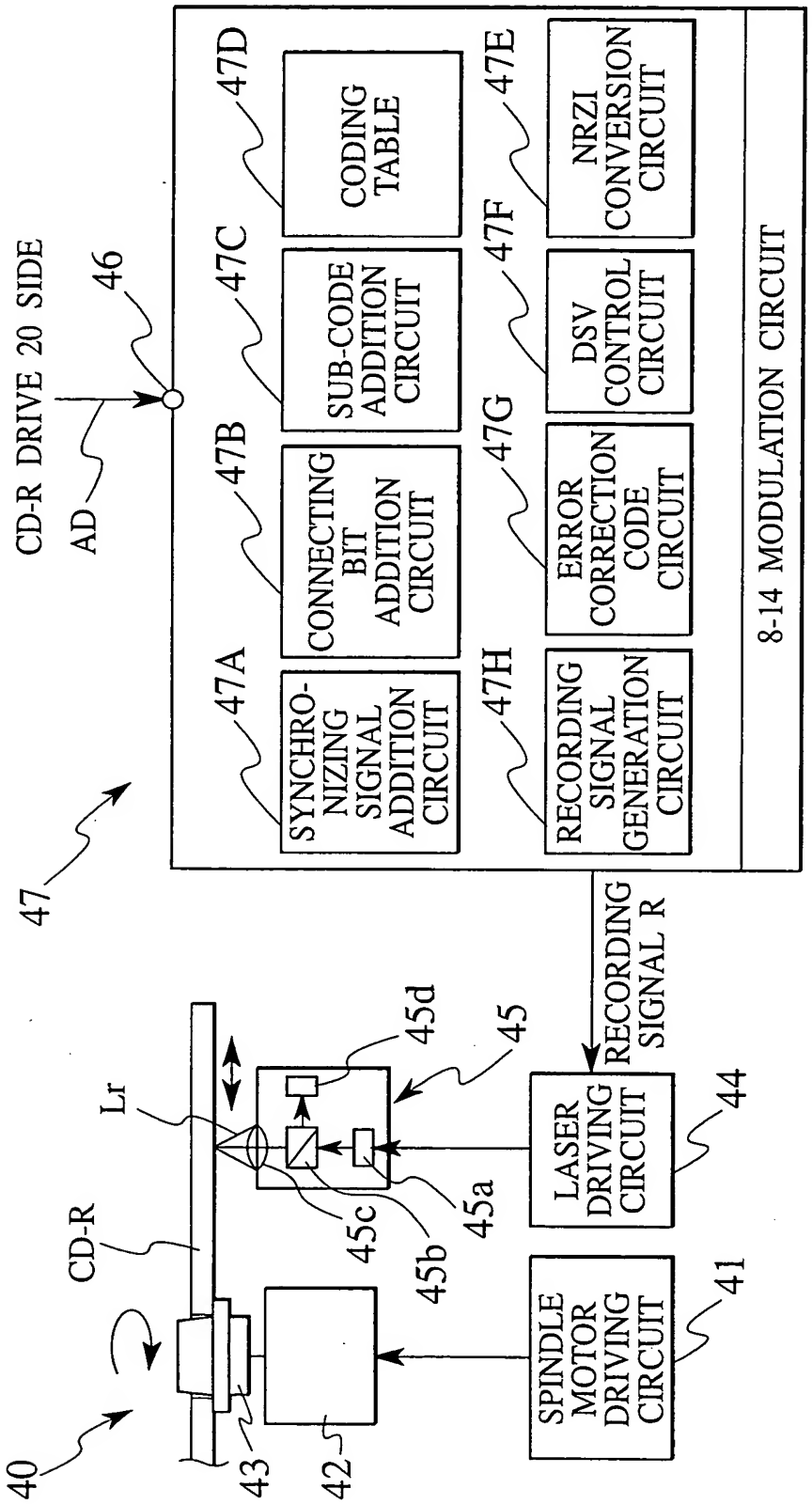


FIG.7
PRIOR ART

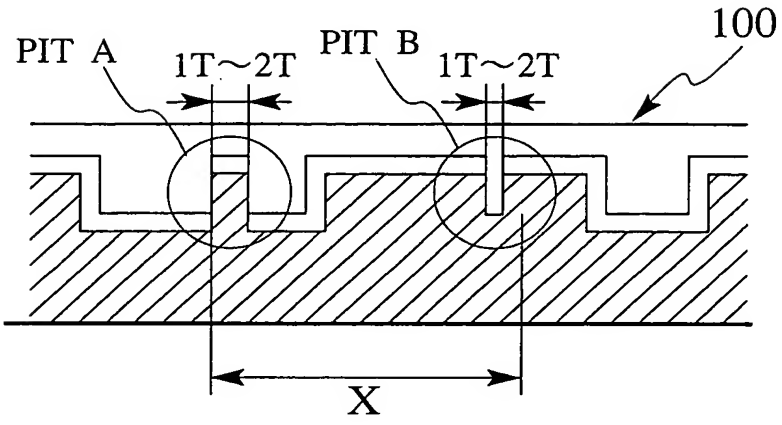


FIG.8
PRIOR ART

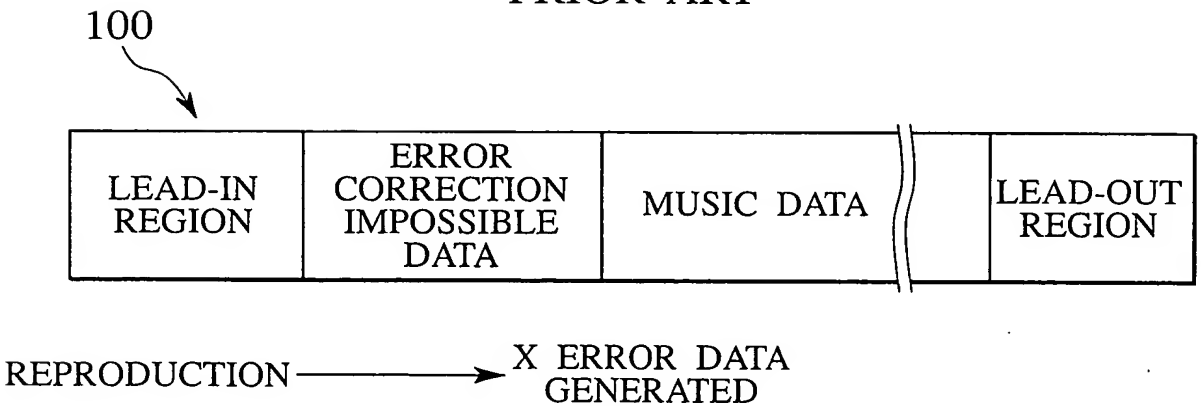


FIG.9A

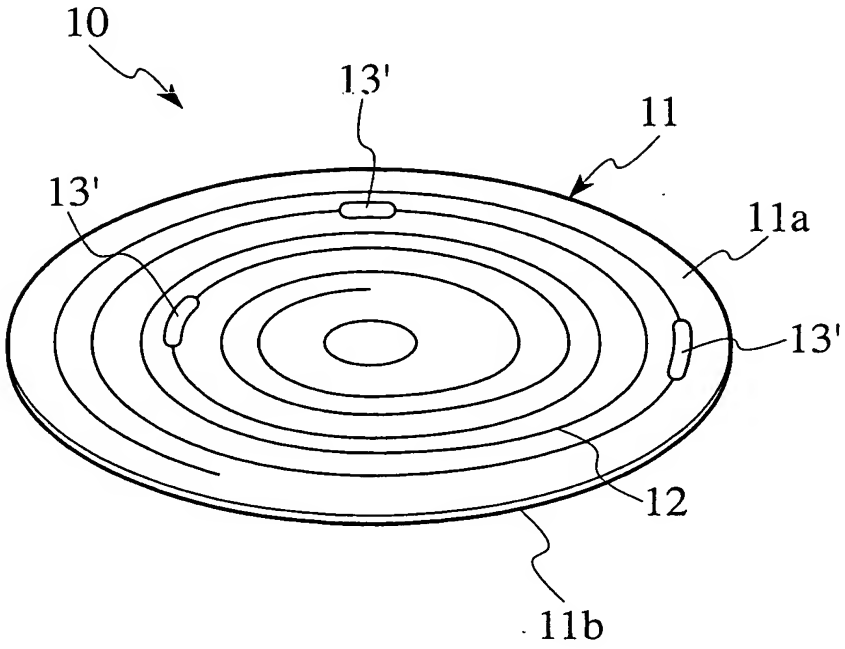

10
13'
11
13'
11a
13'
12
11b

FIG.9B

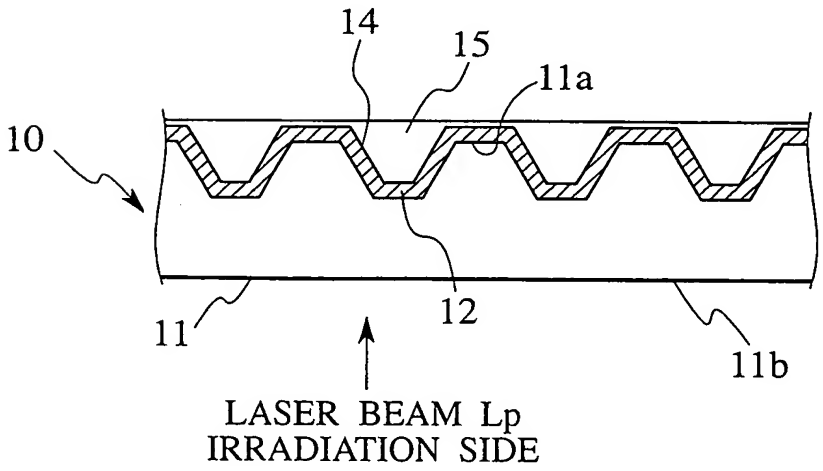

14
15
11a
10
12
11
11b
LASER BEAM Lp
IRRADIATION SIDE

FIG.10A

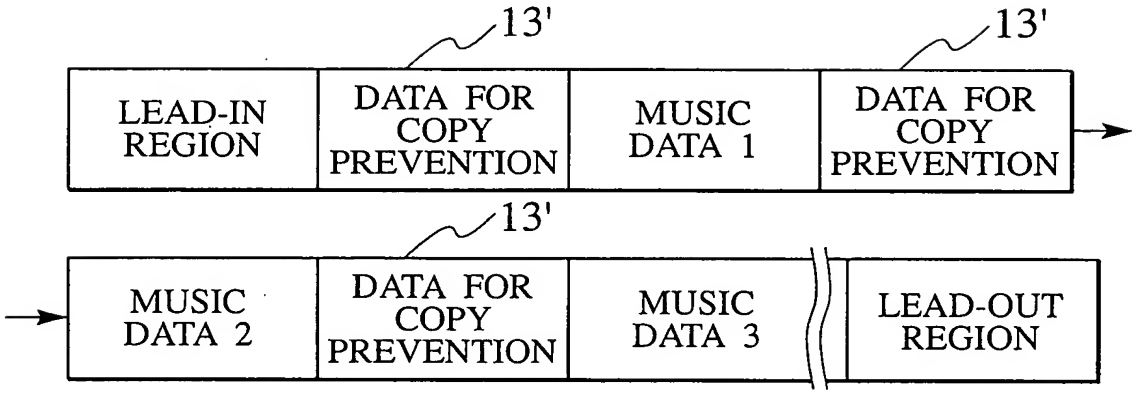
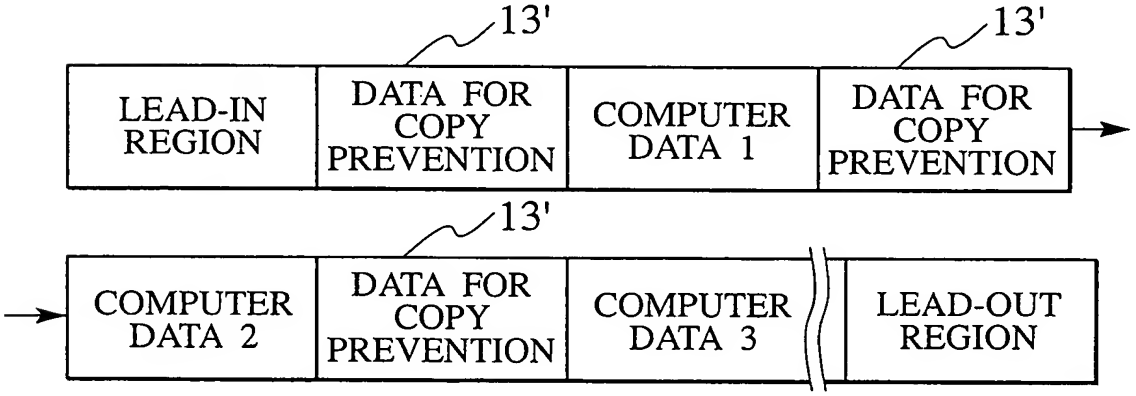


FIG.10B



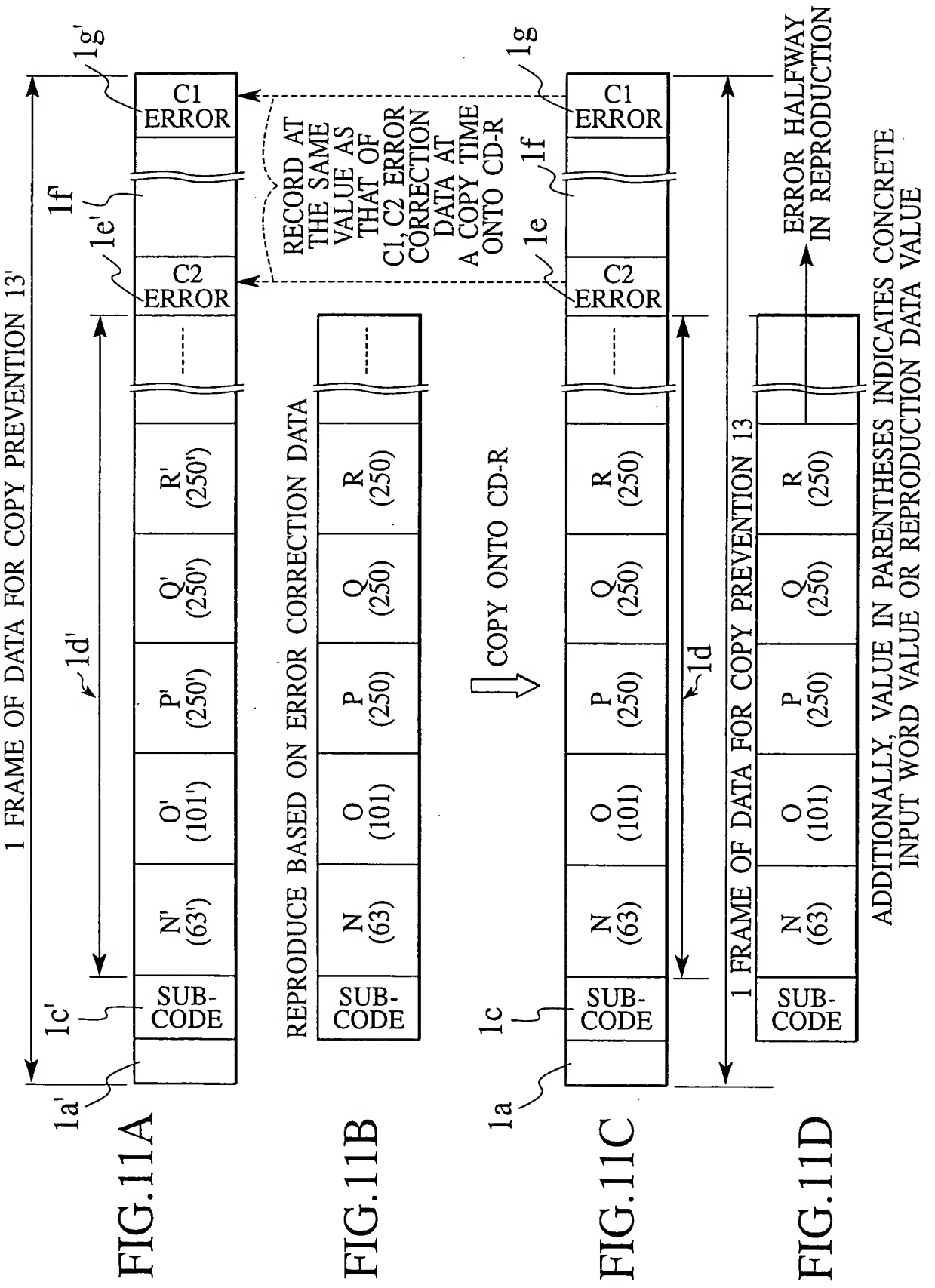


FIG.11A FIG.11B FIG.11C FIG.11D

FIG.12

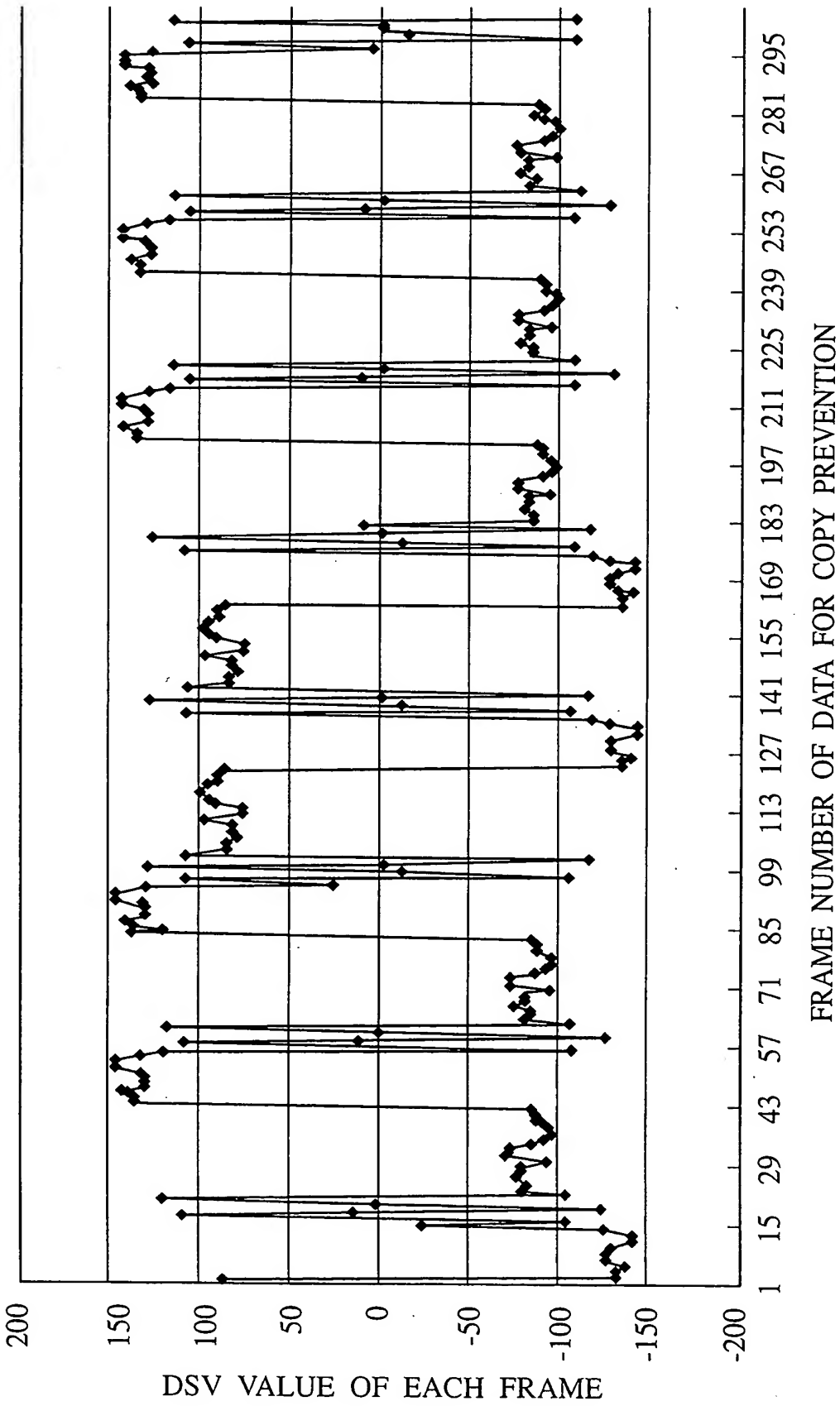

200
150
100
50
0
-50
-100
-150
-200
DSV VALUE OF EACH FRAME
1 15 29 43 57 71 85 99 113 127 141 155 169 183 197 211 225 239 253 267 281 295
FRAME NUMBER OF DATA FOR COPY PREVENTION

FIG.13A

INPUT DATA WORD	63	CONNECTING BITS	101	CONNECTING BITS	250	CONNECTING BITS	250	CONNECTING BITS	250
NUMBER OF CODE WORDS "1"	EVEN NUMBER 00100000001000	010	EVEN NUMBER 00000000100010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010
NRZI CONVERSION DSV VALUE	1210-1-2 ------ -2	-3	---------- -9	-12	---------- -14	-17	---------- -19	-22	---------- -25
TENDENCY OF DSV VALUE	↘		↘		↘		↘		↘

FIG.13B

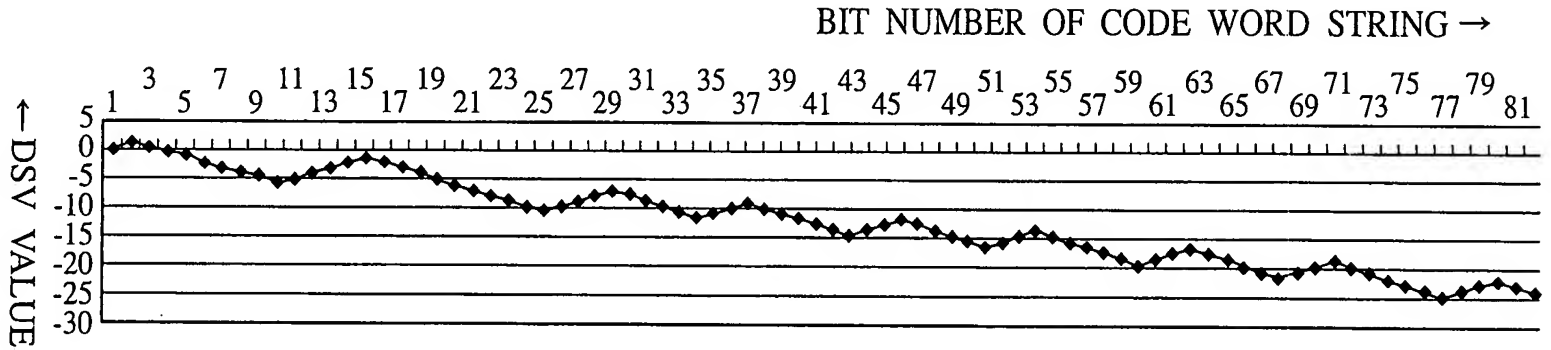


FIG.14A

INPUT DATA WORD	63	CONNECTING BITS	101	CONNECTING BITS	250	CONNECTING BITS	250	CONNECTING BITS	250
NUMBER OF CODE WORDS "1"	EVEN NUMBER 00100000001000	010	EVEN NUMBER 00000000100010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010
NRZI CONVERSION DSV VALUE	-1-2-1012 -----2	3	---------- 9	12	---------- 14	17	---------- 19	22	---------- 25
TENDENCY OF DSV VALUE	↗		↗		↗		↗		↗

FIG.14B

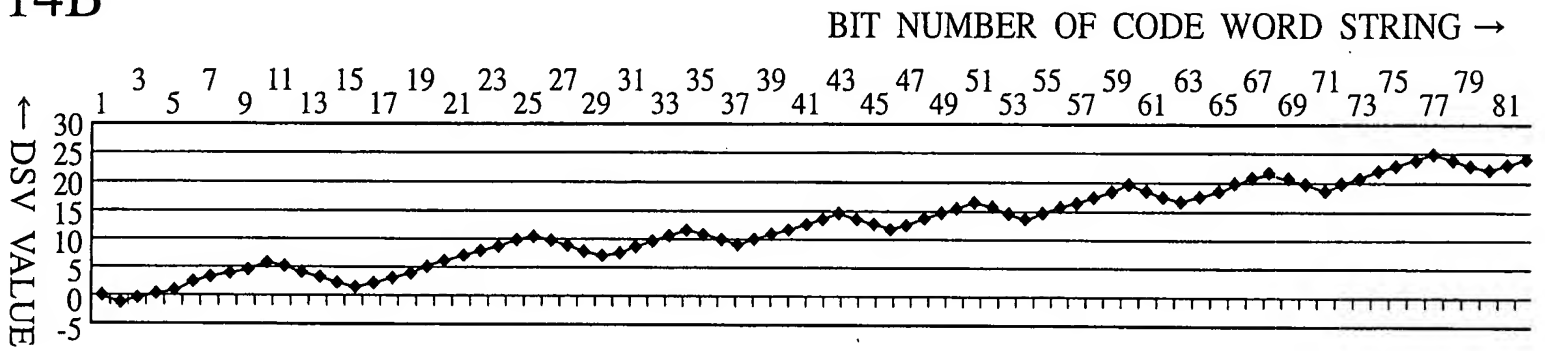


FIG.15A

INPUT DATA WORD	35	CONNECTING BITS	101	CONNECTING BITS	250	CONNECTING BITS	250	CONNECTING BITS	250
NUMBER OF CODE WORDS "1"	ODD NUMBER 00100100100000	010	EVEN NUMBER 00000000100010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010
NRZI CONVERSION DSV VALUE	1210-10 ------ -4	-3	---------- 3	6	---------- 8	11	---------- 13	16	---------- 18
TENDENCY OF DSV VALUE	↘		↗		↗		↗		↗

FIG.15B

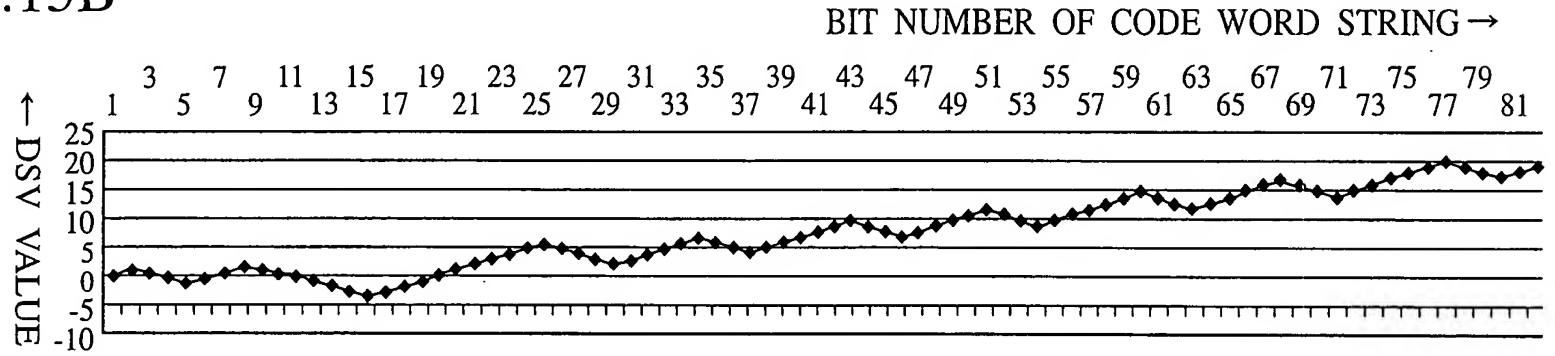


FIG.16A

INPUT DATA WORD	35	CONNECTING BITS	101	CONNECTING BITS	250	CONNECTING BITS	250	CONNECTING BITS	250
NUMBER OF CODE WORDS "1"	ODD NUMBER 00100100100000	010	EVEN NUMBER 00000000100010	000	EVEN NUMBER 10010000010010	000	EVEN NUMBER 10010000010010	000	10010000010010
NRZI CONVERSION DSV VALUE	-1-2-1010 ----- 4	3	---------- -3	-6	---------- -8	-11	---------- -13	-16	---------- -18
TENDENCY OF DSV VALUE	↗		↘		↘		↘		↘

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FIG.16B

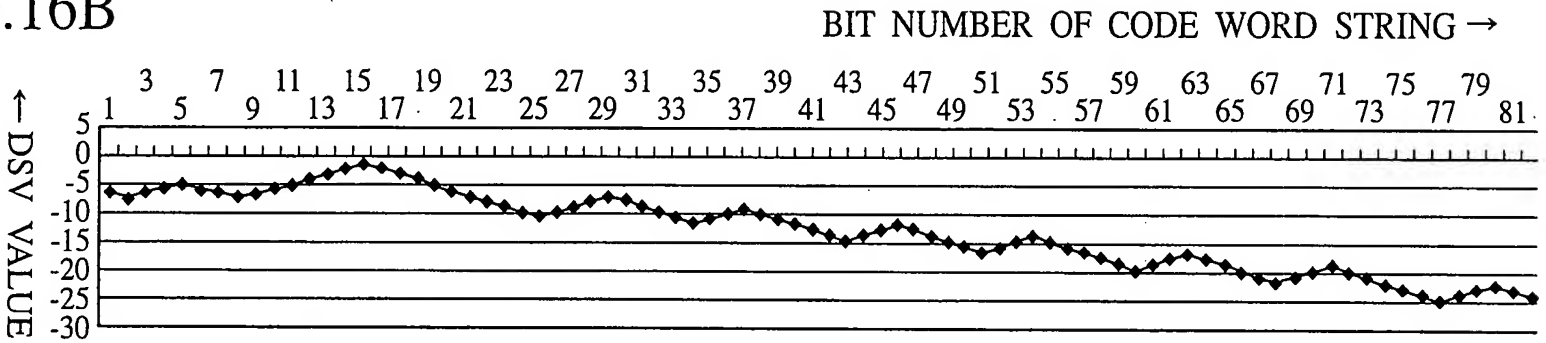

FIG.17

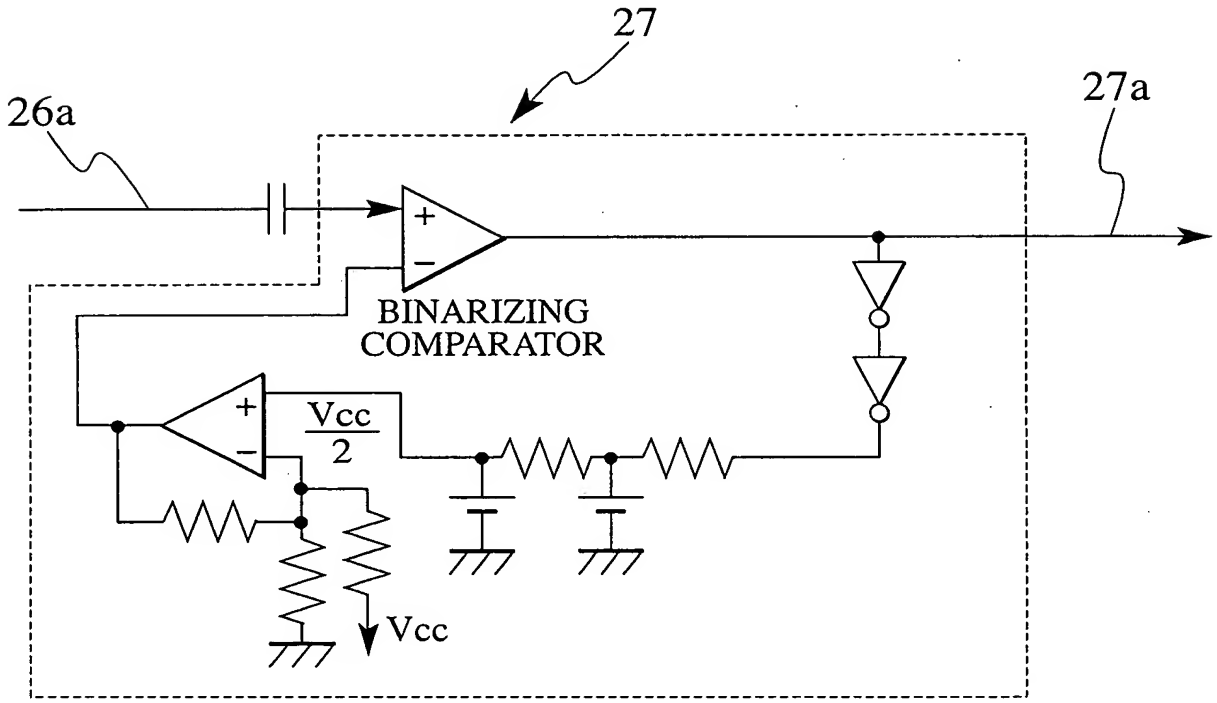

FIG.18A

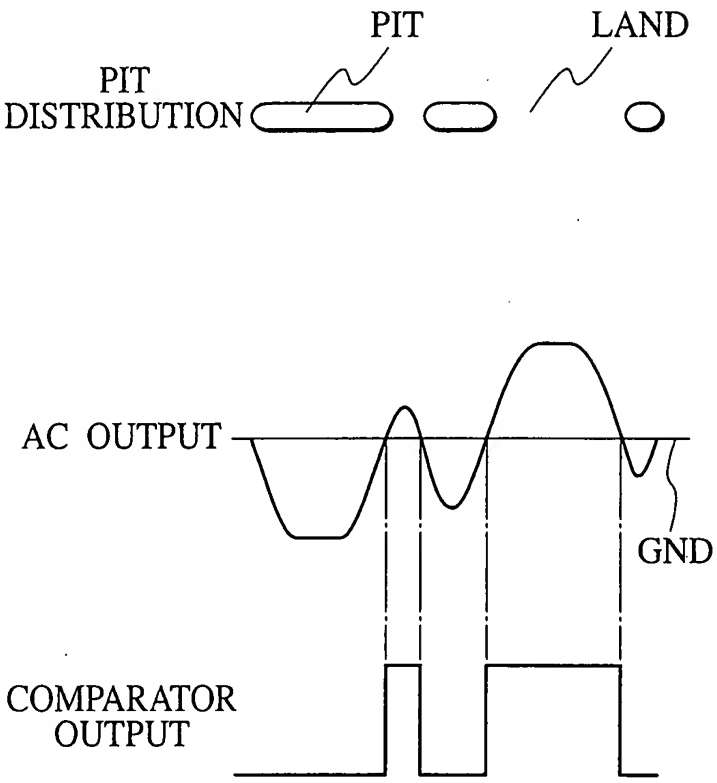

FIG.18B

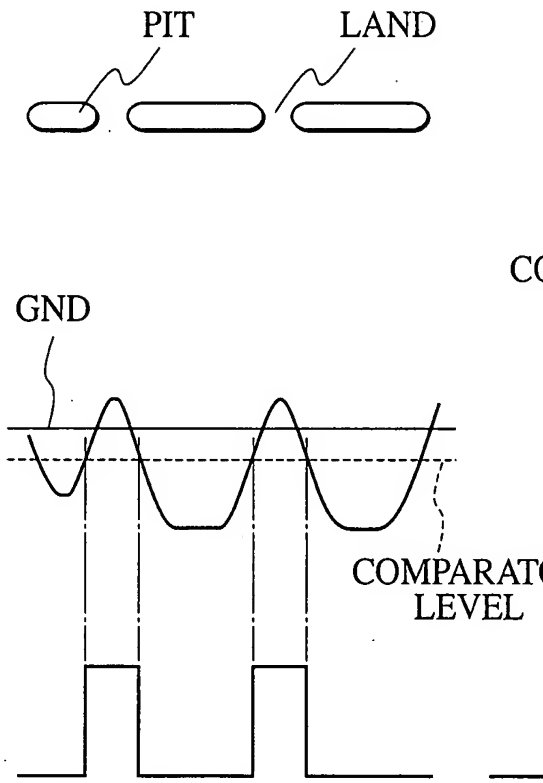
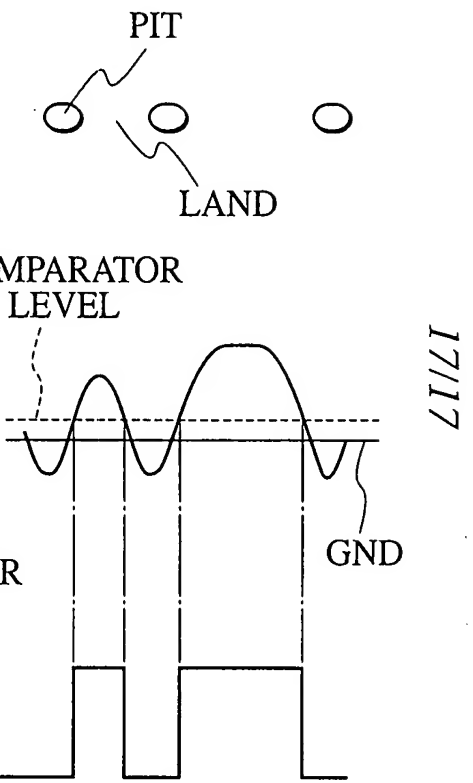
FIG.18C